

XIV.—*Preliminary Note on old Rhyolites from Bouley Bay, Jersey, &c.*

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THE examination of the rhyolite exhumed by Dr. Henry Hicks, F.G.S., from the conglomerate of the Pebidian formation of St. Davids, Pembrokeshire (*Quart. Journ. Geol. Soc., May., 1878, p. 153*), recalled to my mind certain rocks from other localities which had found a place in the large and important petrological collection in the British Museum, which I thought might prove to belong to the same group. Among these, some fragments brought from Bouley Bay, Jersey, by Wm. Carruthers, Esq., F.R.S., whose attention they attracted, interested me especially. It was found, however, that they had not been collected with the view of illustrating the rock in all its varieties, so further examination was postponed until an opportunity occurred to procure more material.

To the kindness of Dr. Andrew Dunlop, F.G.S., of Jersey, I am now indebted for a selection from his own collection of such pieces as he considers will afford a sufficient representation of it in all its varied aspects.

The names "hornstone" and "hornstone porphyry" by which these rocks have been designated, sufficiently suggest their general aspect, but the spherular character of a considerable portion of it appears to have escaped the observation of previous writers.

The revelations of the microscope confirm in the most conclusive manner the view derived from a macroscopical examination. They are true rhyolites, although the subsequent alteration they have undergone through devitrification and the effects of hydrothermal agencies, are in some parts very considerable. Yet the perlitic and spherulitic structures so well exhibited by some of the younger outflows are preserved, the former shewing as distinctly as in their modern representatives. The spherular development is, however, in most cases, much more marked in these older rhyolites than in their younger equivalents, this structure varying from minute spherular groupings without a peripheral definition to distinct bodies easily separable from the mass, which vary in size from that of a pea to over two inches in diameter. Sometimes they occur developed in parallel bands resembling those in the obsidian of the Lipari Islands, but usually they are irregularly distributed through the mass. Occasionally

the perlitic and spherulitic structures are combined, thus supplying undoubted evidence of their original vitreous condition.

Dr. Dunlop informs me that these rocks extend from Bouley Bay across the N.E. corner of the island to St. Catherine's Bay. To the N.E. they are overlain by a conglomerate or rather breccia, which consists largely of the shale forming a large part of the island, with some syenite (probably hornblendic granite); but that near the rhyolites fragments of these are very frequent in it. He also points out that at Anne Port, forming the S. point of Saint Catherine's Bay, the Bouley Bay rocks appear to pass into a "porphyry." This, on examination is resolved into a quartz felsite, and it affords additional evidence of a view I have for some time entertained as to the identity of composition, structure, and origin of a large part of the quartz felsites with the modern rhyolites.

To this group belongs some fragments of a boulder given to the Museum by Spencer G. Perceval, Esq., which formerly existed near Old Cleeve, Somerset, in which the spherules are as large as a cricket-ball, and the mass of which exhibits the fluidal structure in a marked manner. Another rock from the drift at Hartlebury Common, Worcestershire, also collected by Mr. Perceval, belongs here.

Detailed descriptions of all these rocks now in course of being worked out, together with some notes upon the relations of the quartz-felsites to the rhyolites, will form the subject of a communication to the next meeting of the Society.